



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

### PIEDMONT REGIONAL OFFICE

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Doug Domenech  
Secretary of Natural Resources

David K. Paylor  
Director

Michael P. Murphy  
Regional Director

## SOLID WASTE FACILITY PERMIT PERMIT NUMBER 524

**Facility Name:** The East End Landfill

**Facility Type:** Construction/Demolition/Debris Landfill

**Latitude:** 37°29'53"N

**Site Location:** Henrico County

**Longitude:** 77°22'26"W

**Location Description:** The facility is located approximately 1.7 miles northwest of Laburnum Avenue, and approximately 1,000 feet north of Oakland Road, on the east side of Darbytown Road in eastern Henrico County. The edge of Cell VI is approximately 350 feet off of Darbytown Road. The facility address is 1820 Darbytown Road, Richmond, VA 23231.

**Background:** The facility serves as a construction, demolition and debris (CDD) landfill and accepts construction, demolition, and debris waste in compliance with 9 VAC 20-81-10 et seq. Waste will be received from Henrico County and the surrounding localities; waste may be received from anywhere within a 150-mile radius of the facility. This permit covers waste disposal for Cells I, IIA, IIB, IIIA, IIIB, IIIC, IV, V, VI and DRL Cells 1 and 2. As originally issued, the permit covered approximately 10 acres of waste disposal area within the 22 acres that then constituted the facility. On July 7, 2005, a Part A Application for a lateral expansion of the landfill was approved. Under this Part A for expansion, the total permitted acreage is 40.7 acres of which an additional 20 acres have been designated as waste disposal area. This addition brings the total waste disposal area to approximately 30 acres. A subsequent Part A Application was approved on August 12, 2010 for an expansion (Cell IIIC) of the landfill and to merge Permit No. 525 (Darbytown Road Landfill) and Permit No. 524 (TEEL) into one facility operating under Permit No. 524. The proposed Cell IIIC encompasses approximately 7.73 acres and fills the valley between DRL and TEEL. Construction, Demolition, and Debris wastes will be delivered to the site by private haulers and other commercial vehicles. The estimated site life for the facility is 1.5 years assuming the average daily intake rate of 2,500 tons per day. The landfill life is based on the facility operating 312 days per year and an in-place waste density of 1.25 tons per cubic yard.

CELL	CONSTRUCTED	ESTIMATED AREA (ACRES)	ESTIMATED CAPACITY (CUBIC YARDS)
I	1988	4.79	631,000
II	A – 1999	A – 2.53	163,000
	B – 2001	B – 2.30	181,000
III	A – 2006	A – 2.54	140,000
	B – 2007	B – 2.64	392,000
	C - 2011	C – 7.73	790,000
IV	2008	5.04	537,000
V	2009	3.24	261,000
VI	2009	3.74	293,000
DRL Cell 1	1975	5.70	473,000
DRL Cell 2	1989	7.79	550,000
TOTAL		48.04	4,411,000

**Permit Limits:** The landfill is limited to a maximum daily intake rate of 3,500 tons per day. The maximum approved final elevation for the facility is approximately 302 feet above mean sea level, as indicated on Cell IIIC Development Permit Amendment Design Drawing Sheet No. 6B. For estimating site life under normal operating conditions, an intake rate of 2,500 tons per day has been used.

**Permit Highlights:** This permit is based on the modular concept to assure completeness and consistency of the documents. It includes several permit modules which specify general permit conditions and facility requirements and provide for appropriate design, maintenance, closure, post-closure, and monitoring of the solid waste management facility permitted. Various attachments further describe the approved plans for the design and operation of the facility. The permit modules and attachments are based on information submitted on behalf of the owner and are shown in the Permit Modules and Permit Attachments Reference List.

Cells I and II have been constructed using a soil liner consisting of the following components (from bottom to top):

- Compacted subgrade;
- Minimum 12" thick compacted soil liner,  $K \text{ (permeability)} \leq 1 \times 10^{-7} \text{ cm/sec}$ .

Cells IIIA and IIIB have been constructed with a soil liner system consisting of the following components (from bottom to top):

- Compacted subgrade;
- Minimum 12" thick compacted soil liner,  $K \leq 1 \times 10^{-7} \text{ cm/sec}$ ;
- Minimum 12" thick drainage layer,  $K \geq 0.05 \text{ cm/sec}$

Cell IV has been constructed with a synthetic liner system consisting of the following components (from bottom to top):

- Compacted Subgrade;
- 60-mil HDPE geomembrane;
- Geotextile cushion layer;
- 18-inch thick leachate collection and protective cover layer,  $K \geq 0.09$  cm/sec (as an option, the upper 9 inches of this layer may be tire chips that are demonstrated by laboratory testing to meet the criterion of  $K \geq 0.09$  cm/sec).

Cells V and VI have been constructed with a geosynthetic liner system consisting of the following components (from bottom to top):

- Compacted Subgrade;
- 60-mil HDPE geomembrane;
- Geotextile cushion layer;
- 12-inch thick leachate drainage layer of either select aggregate or graded crushed concrete with a  $K \geq 0.09$  cm/sec and no greater than 15% calcium carbonate equivalent;
- 6-inch thick protective cover layer,  $K \geq 0.09$  cm/sec (this may be either aggregate, crushed concrete, or tire chips or shred).

The liner for Cell IIIC will be constructed with a geosynthetic liner system and will consist of the following components (from bottom to top):

- 60-mil HDPE geomembrane;
- Geocomposite (300-mil geonet and 8oz/sy geotextile on both sides)
- 12-inch thick leachate drainage layer of either #57 stone or crushed concrete with a  $K \geq 0.09$  cm/sec and no greater than 15% calcium carbonate equivalent;
- 6-inch thick protective cover layer,  $K \geq 0.09$  cm/sec (this may be #57 stone, crushed concrete, or tire chip/shred)

The finished side slopes for the facility shall be 2.5H:1V (40%). There are two alternative final cover systems proposed for the facility. The final cover system used must be appropriate for the bottom liner system installed. For the cells constructed with a soil liner system, the final cover system may consist of the following (from bottom to top):

- Minimum 12" thick intermediate cover;
- Minimum 18" thick soil infiltration barrier layer (soil cap) ( $K \leq 1 \times 10^{-7}$  cm/sec);
- Minimum 18" thick erosion control/protective cover layer;
- Minimum 6" thick top soil or amended soil.

Cells with a geosynthetic bottom liner shall have the following final cover system placed (components shown from bottom to top); this final cover system may also be used in cells with a soil bottom liner:

- Minimum 12" thick intermediate cover;
- Gas-collection geocomposite;
- Geomembrane (textured, 40-mil);
- Drainage geocomposite;
- Minimum 18" thick erosion control/protective cover layer;
- Minimum 6" thick top soil or amended soil.

Leachate from the facility flows by gravity from Cells I-III and DRL Cells 1 and 2. Sidewall riser pumping systems are used for Cells IIIC, IV, V and VI pump the leachate into the conveyance system then is discharged directly into the Henrico County Publicly-Owned Treatment Works (POTW) sewer line.

**Permit Amendments:** This is the ninth modification of Permit Number 524. This major permit modifications merges Permit No. 525 (Darbytown Road Landfill) and Permit No. 524 (TEEL) into one facility permit operating under Permit No. 524. It also incorporates the provisions for the design and construction of Cell IIIC. The Groundwater Monitoring Plan is amended to address Cell IIIC.

**Previous Variance:** Permit Amendment 6 included a variance in accordance with 9 VAC 20-80-760 to use the default risk-based Alternate Concentration Limits (ACL) as groundwater protection standards.

**THIS IS TO CERTIFY THAT:**

The East End Landfill, LLC  
Attn: Mr. Mathew P. Appelget, President  
1790 Darbytown Road  
Richmond, VA 23231

is hereby granted a permit to construct, operate, and maintain the facility as described in the attached Permit Modules and associated Permit Attachments. These Permit Modules and Permit Attachments are as referenced hereinafter and are incorporated into and become a part of this permit.

The herein described activity is to be established, modified, constructed, installed, operated, used, maintained, and closed in accordance with the terms and conditions of this permit and the plans, specifications, and reports submitted and cited in the permit. The facility shall comply with all regulations of the Virginia Waste Management Board. In accordance with § 1408.1(D) of the Code of Virginia, prior to issuing this permit, any comments by the local government and general public have been investigated and evaluated and it has been determined that the facility poses no substantial present or potential danger to human health or the environment. The permit contains such conditions and requirements as are deemed necessary to comply with the requirements of the Virginia Code, the regulations of the Board, and to prevent substantial or present danger to human health or the environment.

Failure to comply with the terms and conditions of this permit shall constitute grounds for the revocation or suspension of this permit and for the initiation of necessary enforcement actions. The permit is issued in accordance with the provisions of § 10.1-1408.1.A, Chapter 14, Title 10.1, Code of Virginia (1950) as amended.

The permit is issued in accordance with the provision of 10.1-1408.1 A, Chapter 14, Title 10.1, Code of Virginia (1950) as amended.

Issued : July 19, 1988  
Amendment 1: June 16, 1999 (Major Amendment)  
Amendment 2: May 1, 2006 (Minor Amendment)  
Amendment 3: May 11, 2006 (Minor Amendment)  
Amendment 4: July 19, 2006 (Major Amendment)  
Amendment 5: August 7, 2007 (Minor Amendment)  
Amendment 6: November 26, 2008 (Major Amendment)  
Amendment 7: November 24, 2009 (Major Amendment)  
Amendment 8: January 20, 2010 (Minor Amendment)

**APPROVED:**

                    DRAFT                      
Kyle Ivar Winter, P.E.  
Deputy Regional Director

DATE:

                    DRAFT                      
Amendment No. 9

## **PERMIT MODULES AND PERMIT ATTACHMENTS<sup>1</sup> REFERENCE LIST**

### **PERMIT MODULE I<sup>1</sup> -- GENERAL PERMIT CONDITIONS**

### **PERMIT MODULE II -- OPERATIONS MANUAL (LOCATED AT THE FACILITY)**

**Permit Attachment 1** - Combustion Control and Monitoring Plan

**Permit Attachment 2** - Fugitive Dust Control Plan

**Permit Attachment 3** - Odor Management Plan

### **PERMIT MODULE IV -- DESIGN REPORT**

**Permit Attachment 1** - Permit Drawings

**Permit Attachment 2** - Design Report

**Permit Attachment 3** - Part A Approval Letter with Drawings

**Permit Attachment 4** - Landfill Gas Management Plan

**Permit Attachment 5** - Technical Specifications

**Permit Attachment 6** - Construction Quality Assurance Plan

**Permit Attachment 7** - Cut and Fill Plan

### **PERMIT MODULE X -- FIRST DETERMINATION MONITORING REQUIREMENTS**

**Permit Attachment 1** - Groundwater Monitoring Plan

### **PERMIT MODULE XI -- PHASE II MONITORING REQUIREMENTS**

**Permit Attachment 1** - Groundwater Protection Standards

### **PERMIT MODULES XII & XIII<sup>2</sup> -- CLOSURE AND POST-CLOSURE CARE PLAN**

**Permit Attachment 1** - HELP Model Output

**Permit Attachment 2** - Cap Calculations

**Permit Attachment 3** - Post-closure Inspection Report Form

**Permit Attachment 4** - Closure and Post-closure Care Cost Estimate

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#### **NOTES:**

1. Should information contained in any permit module that consists of documents submitted by the permittee, conflict with the any requirement or condition contained in Permit Modules I, IV, X, XI, XII, XIII or 9VAC20-81 *et seq.*, the regulatory/permit module requirement or condition shall prevail (unless an appropriate variance has been granted). The Department is not responsible for spelling, typographical, or syntax errors in modules based on information submitted by the permittee.
2. The Post-Closure Care Plan contact list may be revised with Department notification in accordance with 9VAC20-81-600.F.1

## PERMIT MODULE I GENERAL PERMIT CONDITIONS

### I.A. EFFECT OF PERMIT

The permittee is allowed to dispose solid waste on-site in accordance with the conditions of this permit. Any disposal of solid waste not authorized by this permit is prohibited. Compliance with the terms of this permit does not constitute a defense to any order issued or any action brought under Sections 10.1-1402(18), 10.1-1402(19), or 10.1-1402(21) of the Virginia Waste Management Act (Chapter 14, Title 10.1, Code of Virginia (1950), as amended); or any other law or regulation for protection of public health or the environment. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstances is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby. For purposes of this permit, terms used herein shall have the same meaning as those in the Virginia Waste Management Act, and Part I and other pertinent parts of the Virginia Solid Waste Management Regulations (VSWMR, 9VAC20-81-10, *et seq.*), unless this permit specifically provides otherwise; where terms are not defined in the regulations or the permit, the meaning associated with such terms shall be defined by the generally accepted scientific or industrial meaning of the term or a standard dictionary reference. "Director" means the Director of the Department of Environmental Quality, or his designated or authorized representative.

### I.B. DUTIES AND REQUIREMENTS

The permittee shall comply with all conditions of this permit and 9VAC20-81-10, *et seq.* The effect of this permit is detailed in 9VAC20-81-490, and it shall be the duty of the permittee to insure the applicable requirements are met. Additionally, the permittee is subject to the recording and reporting requirements detailed in 9VAC20-81-530. The facility will be designed and constructed per the requirements of Permit Module IV, operated and maintained per the Operations Manual, closed and maintained in post-closure per Permit Modules XII and XIII, and subject to a groundwater monitoring program per Permit Module X or XI. In addition to these requirements, the following additional conditions are invoked per 9VAC20-81-430, and shall be complied with:

I.B.1. Noncompliance may be authorized by a schedule of compliance [9VAC20-81-490.D. and 9VAC20-81-490.H.]. Any other permit noncompliance constitutes a violation of Virginia Waste Management Act and is grounds for enforcement action, or for permit revocation, revocation and reissuance, or modification [9VAC20-81-570 and 9VAC20-81-600].

I.B.2 The permittee shall comply with the requirements of this permit and any provisions of RCRA Subtitle D (Title 40, Code of Federal Regulations, Section 258) requirements as they become applicable upon their effective date. This

permit may not act as a shield against compliance with any part of RCRA or any other applicable federal regulation, state regulation or state law.

- I.B.3. In an enforcement action, it shall not be a defense for the permittee that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- I.B.4. In the event of noncompliance with this permit, the permittee shall take all reasonable steps to minimize releases of solid wastes or waste constituents to the environment and shall carry out measures to prevent substantial adverse impacts on human health or the environment.
- I.B.5. The permittee shall at all times properly operate and maintain all units (and related appurtenances) which are installed or used by the permittee to achieve compliance with the operations manual and the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing, and training, and adequate laboratory and process controls, including appropriate quality assurance/quality control procedures. This provision requires the operation of back-up or auxiliary equipment only when necessary to achieve compliance with the conditions of this permit.
- I.B.6. The permittee shall furnish to the Director, within a reasonable time, any relevant information that the Director may request to determine compliance with this permit, regulations or the Act. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit by the date specified in the request.
- I.B.7. The permittee shall allow the Director, or an authorized representative, upon the presentation of appropriate credentials, to:
  - I.B.7.a. Enter at reasonable times upon the permitted facility where a regulated unit or activity is located or conducted, or where records must be kept under the conditions of this permit;
  - I.B.7.b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
  - I.B.7.c. Inspect at reasonable times any unit, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
  - I.B.7.d. Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by Virginia Waste Management Act, any substances or parameters at any location within his control.



- I.B.8. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample to be analyzed must be the appropriate method from the latest edition of Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, EPA Publication SW-846.
- I.B.9. This permit is not transferable to any person, unless approved by the Director. The Director may require modification or revocation and reissuance of the permit pursuant to 9VAC20-81-490.G. Before transferring ownership or operation of the facility during its operational life, the permittee shall notify the new owner or operator in writing of the requirements of Parts III and V, of the Virginia Solid Waste Management Regulations, the Financial Assurance Regulations, 9VAC20-70-10, *et seq.*, and this permit.
- I.B.10. In accordance with § 10.1-1408.2, all facilities must have a Certified Operator as required by the Board of Waste Management Facility Operators-Licensing Regulations, 18 VAC 155-20-10, *et seq.*
- I.B.11. Specifications for all drainage media should specify that the material shall contain no greater than 15% calcium carbonate equivalent. Department literature regarding research on leachate collection media indicates that weight loss greater than 15% results in an unacceptable loss of performance. If a greater percentage is specified or allowed, a demonstration that performance is not adversely affected must be provided to the Department for review and approval.
- I.B.12. Recirculation of collected leachate shall not be allowed, in accordance with 9VAC20-81-210.D.3., except when the area to be irrigated is underlain by a composite liner system. Furthermore, in accordance with 9VAC20-81-200.C.3.c, decomposition gas condensate may be recirculated into the landfill provided the facility complies with the composite liner requirement and the leachate control system requirements of Part III of VSWMR. A composite liner system is a system designed to meet the requirements of 9VAC20-81-130.J.1.a. or J.1.b.
- I.B.13. The closure cost estimate must reflect the maximum cost of closure at all times. The owner has the responsibility to maintain the closure and post closure cost estimate and associated financial assurance funding as conditions change.

## I.C. DOCUMENTS TO BE MAINTAINED AT THE FACILITY

The permittee shall maintain the following documents at the facility, or another location approved by the director, until post-closure is complete and certified by a professional engineer, and shall maintain amendments, revisions, and modification to these documents:

I.C.1. Design Plans

I.C.2. Operations Manual

I.C.3. Gas Management Plan

I.C.4. Groundwater Monitoring Plan

I.C.5. Leachate Management Plan

I.C.6. Closure and Post-Closure Plan

I.C.7. Detailed, written estimate, in current dollars, of the cost of closing the facility, post-closure care and corrective action measures

I.C.8. All other documents/records required and applicable from the following:

I.C.8.a. Monitoring records from leachate, gas, and groundwater monitoring

I.C.8.b. Inspection records as required from construction/installation, operational, closure, post-closure inspection requirements

I.C.8.c. Personnel training records

I.C.8.d. Daily operational records (i.e., solid waste received and processed, fill area records, records of special wastes accepted, a logbook which is a daily narrative account of the activities at the landfill)

I.C.8.e. Construction quality assurance reports, record drawings and engineers certifications for all new liner and/or final cover construction

I.C.9. An approved copy of the complete Part A permit

I.C.10. Documentation of the authorization to discharge leachate into the publicly/privately owned treatment works, leachate volumes sent to the POTW, and periodic leachate sampling analytical results

## I.D. DOCUMENTS TO BE SUBMITTED

In addition to the documents/records/reports to be submitted per the requirements of this permit or 9VAC20-81-10, *et seq.*, the permittee shall also submit the following documents to the Director according to indicated schedules:

I.D.1. Prior to expansion into each new phase, the permittee shall submit all required certification documents per 9VAC20-81-490.A., and:

I.D.1.a. Authorization from the Henrico County Publicly-Owned Treatment Works (POTW) to discharge the increased volume of leachate and wastewater to the sewer line and treatment works.

I.D.1.b. Report and supporting documents resulting from quality control/quality assurance activities performed during construction and installation of the liner/drainage systems, including the installation contractor's written acceptance of the surfaces to be lined, synthetic liner manufacturer and installer warranties, laboratory test results of the permeability of the clay liner and the drainage media overlying the liner, and representative copies (sufficient to demonstrate responsible control) of the accumulated inspection schedules resulting from the professional engineer's oversight of the construction.

I.D.2. In accordance with 9VAC20-81-490.A., certification from a design engineer, who must be a professional engineer licensed to practice in Virginia, that the construction of the facility has been completed in accordance with the permit, approved plans and specifications and is ready to begin operation. A certification will be required for each lined phase of development.

I.D.3. Certification (separate from I.D.2, above) from the Construction Quality Assurance (CQA) officer that the approved CQA plan has been successfully carried out and that the constructed unit meets all requirements of the permitted CQA plan, in accordance with 9VAC20-81-130.Q. A certification will be required for each lined phase of development. The CQA officer must be a professional engineer licensed to practice in Virginia.

I.D.4. The as-built plans of all new groundwater and gas monitoring wells shall be submitted as these wells are installed. Information to be included on the as-built plans shall include, but is not limited to, the total depth of the well, the surveyed elevations of the top of casing and ground surface (or apron), and the length and location of the screened interval and annular space seal. All dimensions are to be shown on well construction schematics.

I.D.5. Following construction of the final cover system for each unit, certification, signed by a registered professional engineer, shall be submitted verifying that closure has been completed in accordance with the permit, approved plans, and

specifications. A certification will be required for each capped landfill phase and shall include the results of the CQA/QC requirements under 9VAC20-81-130.Q.1.b.(6).

I.D.5.a. The certification shall include verification that closure has been completed in accordance with the requirements of 9VAC20-81-160.D.5.a. through 5.c., which require posting a sign at the facility entrance and erecting suitable barriers to prevent access; submitting a survey plat to the local land reporting authority; and recording a notation on the deed to the facility property.

I.D.6. Not less than 180 days prior to the completion of the post-closure monitoring and maintenance period as prescribed by the Board's regulations or by the Director, the owner or operator shall submit to the Director a certificate, signed by a professional engineer licensed in Virginia, that post-closure monitoring and maintenance have been completed in accordance with the facility's Closure Plan, Permit Attachment XII.

I.D.6.a. The certificate submitted under I.D.6, shall be accompanied by an evaluation prepared by a professional engineer licensed in Virginia, and signed by the owner or operator, which assesses and evaluates the landfill's potential for harm to human health and the environment in the event that post-closure monitoring and maintenance are discontinued.

I.D.6.b. If the Director determines that continued post-closure monitoring or maintenance is necessary to prevent harm to human health or the environment, he shall extend the post-closure period for such additional time as the Director deems necessary to protect human health and the environment and shall direct the owner or operator to submit a revised post-closure plan and to continue post-closure monitoring and maintenance in accordance therewith. Requirements for financial assurance shall apply throughout such extended post-closure period.

I.E. REPORTS, NOTIFICATIONS, AND SUBMISSIONS TO THE DIRECTOR

All reports, notifications, or other submissions which are required by this permit to be sent or given to the Director should be sent by certified mail to:

Virginia Department of Environmental Quality  
Division of Land Protection and Revitalization  
Piedmont Regional Office  
4949-A Cox Road  
Glen Allen, Virginia 23060

## I.F. SITE SPECIFIC CONDITIONS

The provisions of this section are in addition to the permit conditions and regulatory requirements and are specifically developed for this facility.

I.F.1. The facility may only accept construction waste, demolition waste, and debris waste as defined in the Virginia Solid Waste Management Regulations.

I.F.2. The facility shall remove the old City of Richmond landfill, and address any groundwater contamination, in accordance with the Regulation, prior to submitting a request for a Certificate to Operate for Cell III-C.

I.F.2.a The facility shall obtain any necessary local authorizations prior to commencing excavation.

I.F.2.b Contents of the old landfill shall be completely excavated, including all soils showing visible evidence of contamination.

I.F.2.c Contents of the old landfill that constitute construction waste, demolition waste or debris waste may be disposed of at the facility.

I.F.2.d Contents of the old landfill that do not constitute construction waste, demolition waste or debris waste shall be removed from the site and disposed of in accordance with the Regulation. Hauling records showing the volume, date/time and ultimate disposal site shall be maintained by the facility.

I.F.2.e If the facility encounters hazardous waste in the course of removing the contents of the old City of Richmond landfill, The East End Landfill, LLC shall be considered a generator and shall request a temporary hazardous waste generate identification number from the Department within 24 hours of discovering hazardous waste. The facility shall comply with all applicable storage, transportation and disposal requirements of 9VAC20-60.

I.F.3. Aggregate impacts resulting from the landfill, both existing and proposed, total 4.7 acres of wetlands, open water and degraded channels. An appropriate contribution has been made to the Virginia Wetland Restoration Trust Fund in lieu of constructing 1.9 acres of wetlands as a condition of a previous authorization. Proposed impacts to the remaining 2.61 acres of open water and 0.22 acres of degraded channel (600 linear feet) must be performed in accordance with the Army Corps of Engineers Permit No. 03-V0002-82, and VWP Individual Permit No. 03-0002, dated March 24, 2004.

I.F.4. Waste shall not be placed at grades too steep for effective compaction by the compactor in order to achieve waste densities sufficient to inhibit the propagation of landfill fires and to ensure the stability of the waste mass.

- I.F.5. The final grading plan for the closure of the facility shall be *Cell IIIC Development Drawings No. 6A-6D (revised 2/16/11), Final Grades (Cells I thru VI & Cell IIIC)*
- I.F.6. By December 31, 2011 and each calendar year thereafter, the permittee shall perform a topographic survey of the facility; this survey shall be certified by a professional engineer or certified land surveyor licensed in the Commonwealth of Virginia. The permittee shall submit a report to the DEQ Piedmont Regional Office Waste Program by April 1 of the year following with a determination of areas of the landfill that have attained final elevations and grades. The report shall also assess the capacity utilized during the year, the remaining permitted capacity and the projected remaining site life. Areas that have attained final elevations and slopes must be stabilized in accordance with the permit until final cover is applied in accordance with the timeframe specified in the Closure Plan. Except as may be separately approved or permitted in writing by DEQ for exigent or emergency situations, no waste shall be placed in areas where the elevations exceed those shown on *Cell IIIC Development Drawings No. 6A, 6B, 6C and 6D (revised 2/16/11), Final Grades (Cells I thru VI & Cell IIIC)*.
- I.F.7 Local government approval shall be documented and provided to the Department if the alternate drainage layer design is to be used for Cell IIIC. The alternate drainage layer design uses tire chips/shreds as the material for the protective cover layer. Documented approval from Henrico County must be submitted to the Department before commencing construction of Cell IIIC.
- I.F.8 With the exception of excavation necessary to achieve the permitted dimensions of the facility in accordance with the approved Cut and Fill Plan, no mining or materials recovery of wastes already disposed of in Cells I, IIA, IIB, IIIA, IIIB, IIIC, IV, V, VI and DRL Cells 1 and 2 is permitted.
- I.F.9 By December 31, 2011 and each calendar year thereafter, the facility shall review the Operations Plan, Combustion Control Plan, Dust Control Plan and Odor Management Plan and shall submit to the Department notification of any modifications made to reflect current and future practices at the facility.

I.G. PERMIT AMENDMENTS

- I.G.1. The permit was modified by a major amendment approved June 11, 1999 to incorporate the addition of the design for Cells IIA, and IIB.
- I.G.2. A minor amendment approved May 1, 2006 approved the change of ownership and the name of the facility. The ownership is changed to "East End Landfill, LLC." and the name to "East End Landfill".
- I.G.3. A minor amendment dated May 11, 2006 corrected the ownership information for this facility from "East End Landfill, LLC" to "The East End Landfill, LLC". The

original minor permit amendment that changed the ownership and facility name information was approved on May 1, 2006.

- I.G.4. A major amendment was approved July 19, 2006 that describes the design, operation, closure and post-closure care requirements for Cell III. It also upgrades all sections of the permit. The amendment divided Cell III into two phases, Cell IIIA and IIIB.
- I.G.5. The fifth amendment encompasses three separate minor amendment actions and was approved August 7, 2007:
- I.G.5.a. A request received April 2, 2007 for modifications to Specification 02290 and the Construction Quality Assurance Manual to clarify the roles of quality assurance personnel, testing procedures and issues involving the test pad.
- I.G.5.b. A minor amendment request was received April 27, 2007 for the design for the modified leachate conveyance system and for a direct connection to the Henrico County sewerage system. Leachate flows by gravity from each cell. The leachate from Cells I and II flows into the Cells I and II Pump Station, which is connected by a force main to the Cell IIIA Wet Well; leachate from Cell IIIA flows by gravity into the Cell IIIA Wet Well which is connected by a gravity line with the Cell IIIB Pump Station; leachate from Cell IIIB will flow by gravity into the Cell IIIB Pump Station; and finally, all leachate will be pumped from the Cell IIIB Pump Station into the Henrico County sewerage system via a 4-inch force main.
- I.G.5.c. The third request was received June 4, 2007 to increase the average daily intake rate to 450 tons per day, while the maximum daily intake rate remains 900 tons per day. The rate of 450 tons per day was used in the approved solid waste management plan.
- I.G.6. The sixth modification of the permit was a major permit amendment approved November 26, 2008 that incorporated the provisions for the design and construction of Cell IV; and, a minor permit amendment for modification of the leachate collection system to connect the force main for The East End Landfill to the force main for the Darbytown Road Landfill (Permit No. 525), which is an existing connection to the Henrico County Publicly-Owned Treatment Works sewer line. The Groundwater Monitoring Plan was amended to address Cell IV. This permit amendment included a variance in accordance with 9 VAC 20-80-760 to use the default risk-based Alternate Concentration Limits (ACL) as groundwater protection standards.
- I.G.7. The seventh amendment of the permit was a major amendment for the construction and operation of Cells V and VI. This amendment also includes an increase in the average intake rate to 2,500 tons per day and the maximum intake rate of 3,500 tons

per day. The Groundwater Monitoring Plan has been amended to incorporate the expanded disposal area. The amendment incorporated variances to allow the facility to accept certain petroleum-contaminated soil and non-hazardous contaminated soil.

- I.G.8. The eight modification of Permit No. 524 was a minor permit amendment and incorporated a Special Waste Acceptance Plan for the receipt of non-hazardous contaminated soil and petroleum-contaminated soil into the Operations Manual.
- I.G.9. The ninth amendment of the permit is a major modification to merge Permit No. 525 (Darbytown Road Landfill) and Permit No. 524 (TEEL) into one facility operating under Permit No. 524. This modification also includes approval for construction of Cell IIC. The groundwater monitoring plan has been amended to incorporate the expanded disposal area. This modification also specifies that the facility is allowed to take only construction waste, demolition waste, and debris waste and also proscribes landfill mining.